

What is claimed is:

1. An apparatus, comprising:  
a lift device including a drive assembly;  
at least one first sensor attached to the lift device adapted to sense an object above  
5 the lift device; and  
a controller operatively coupled to the at least one first sensor and operatively  
coupled to the drive assembly of the lift device and adapted to interrupt  
operation of the drive assembly when the lift device at least one of approaches  
and or touches the object.
- 10 2. The system of Claim 1, wherein the at least one first sensor includes a through-  
beam emitter and a through-beam receiver.
3. The system of Claim 1, wherein the at least one first sensor includes an optical  
proximity detector.
4. The system of Claim 1, wherein the at least one first sensor includes an ultrasonic  
15 proximity detector.
5. The system of Claim 1, wherein the at least one first sensor includes a contact  
switch.
6. The system of Claim 1, wherein the at least one first sensor includes at least one  
optical proximity detector, at least one through-beam emitter, and at least one through-beam  
20 receiver detector.
7. The system of Claim 1, further comprising:  
at least one second sensor operatively coupled to the controller, the at least one  
second sensor adapted to sense the object to at least one of a side and an end of  
the lift device.

8. The system of Claim 7, wherein the at least one second sensor includes a through-beam emitter and a through-beam receiver.

9. The system of Claim 7, wherein the at least one second sensor includes an ultrasonic proximity detector.

5 10. The system of Claim 7, wherein the at least one second sensor includes a light curtain emitter and a light curtain receiver.

11. The system of Claim 1, further comprising:  
at least one display linked to the controller, the at least one display adapted to indicate a presence of the object proximate to the lift device.

10 12. A system for controlling a lift device, the system comprising:  
at least one hand control adapted to control the lift device;  
at least one drive adapted to move the lift device;  
at least one controller operatively coupled to the at least one hand control and to the  
at least one drive, the controller adapted to interrupt operation of the at least one  
15 drive when the lift device at least one of approaches and touches an object.  
at least one first sensor operatively coupled to the controller, the at least one first  
sensor adapted to sense at least one of an approach to and a contact with an  
object above the lift device, and to transmit a corresponding detection signal to  
the controller.

20 13. The system of Claim 12, wherein the at least one first sensor includes a through-beam emitter and a through-beam receiver.

14. The system of Claim 12, wherein the at least one first sensor includes an ultrasonic proximity detector.

15 25 15. The system of Claim 12, wherein the at least one first sensor includes a contact switch.

16. The system of Claim 12, wherein the at least one first sensor includes at least one optical proximity detector and at least one through-beam detector.

17. The system of Claim 12, further comprising:

5 at least one second sensor operatively coupled to the controller, the at least one second sensor adapted to sense at least one of an approach to and a contact with an object to a side and an end of the lift device, and to transmit a corresponding detection signal to the controller.

18. The system of Claim 17, wherein the at least one second sensor includes a through-beam detector.

10 19. The system of Claim 17, wherein the at least one second sensor includes an ultrasonic proximity detector.

20. The system of Claim 17, wherein the at least one second sensor includes a light curtain emitter and a light curtain receiver.

21. The system of Claim 12, further comprising:

15 at least one display linked to the controller, the at least one display adapted to indicate a presence of the object proximate to the lift device.

22. The system of Claim 12, wherein the at least one display includes a directional display adapted to display a direction the lift device will move if the at least one drive is activated.

20 23. A device for sensing objects, the device comprising:

a module adapted to hold a plurality of sensors;

at least one first sensor attached to the module adapted to sense objects proximate to the device;

25 at least one through-beam receiver attached to the module adapted to receive a light beam that may be interrupted by the proximity of objects; and

at least one through-beam emitter attached to the module adapted to emit a light beam that may be interrupted by objects proximate to the module.

24. The system of Claim 23, wherein the at least one first sensor includes an ultrasonic proximity detector.

5 25. The system of Claim 23, wherein the at least one first sensor includes an optical proximity detector.

26. The system of Claim 23, wherein the at least one first sensor includes a contact switch.

27. The system of Claim 23, further comprising:

10 a contact switch linked to the module, the contact switch arranged to detect an object touching the module.

28. A system for sensing objects proximate to a surface, the system comprising:

a plurality of modules attached to a surface, each module adapted to hold a plurality of sensors, each module including at least one first sensor attached to the module adapted to detect objects proximate to the module and to transmit a  
15 corresponding first detection signal, at least one through-beam receiver attached to the module adapted to detect a light beam that may be interrupted by the proximity of objects and to transmit a corresponding second detection signal, and at least one through-beam emitter attached to the module adapted to emit a  
20 light beam that may be interrupted by the proximity of objects, the plurality of modules positioned with respect to the surface with the at least one through-beam emitter of a module being in optical communication with the at least one through-beam receiver of an adjoining module, and to transmit a corresponding third detection signal;

25 a processor operatively coupled to the at least one first sensor and the at least one through-beam receiver attached to each of the plurality of modules, the



processor adapted receive the first, second, and third detection signals, and output an indication of the proximity of an object to the surface .

29. The system of Claim 28, wherein the at least one first sensor includes an ultrasonic proximity detector.

5        30. The system of Claim 28, wherein the at least one first sensor includes an optical proximity detector.

31. The system of Claim 28, wherein the at least one first sensor includes a contact switch.

32. The system of Claim 28, further comprising:  
10        a plurality of contact switches, each contact switch linked to one of the plurality of modules, each contact switch arranged to detect an object touching one of the plurality of modules .

33. A display system, comprising:  
a lift device including a steering mechanism,  
15        a direction indicator operatively connected to the steering mechanism, the direction indicator adapted to indicate an angle the steering mechanism is oriented;  
at least one sensor device adapted to detect a presence of an object proximate to the lift device; and  
at least one proximity display operatively connected to the at least one sensor  
20        device, the at least one proximity display adapted to indicate the presence of an object proximate to the lift device detected by the at least one sensor device.

34. The system of Claim 33, wherein the at least one sensor device includes a through-beam sensor device, and the at least one proximity display includes at least one line of lights indicating the presence of an object proximate to the lift device detected by the through-beam  
25        sensor device.

35. The system of Claim 33, wherein the at least one sensor device includes a through-beam sensor device and wherein the at least one proximity display includes at least one line of icons indicating the presence of an object proximate to the lift device detected by a through-beam sensor device linked to the proximity display.

5        36. The system of Claim 33, wherein the at least one sensor device includes a proximity sensor and wherein the at least one proximity display includes at least one icon indicating the presence of an object proximate to the lift device sensed by the proximity sensor linked to the proximity display.

10       37. The system of Claim 33, wherein the direction indicator further indicates a lateral direction the lift device will move if a propulsion device driving the lift across the a supporting surface is engaged.

15       38. A method for controlling a lift device, comprising:  
detecting an object proximate to an upper portion of the lift device; and  
interrupting an up command from a hand control operated by a worker from being  
communicated to a drive component driving an upward motion of the lift  
device.

20       39. The method of Claim 38, further comprising:  
detecting an object proximate to a lateral surface of the lift device; and  
interrupting a lateral move command from a hand control operated by a worker  
from being communicated to a drive component driving a lateral motion of the  
lift device.

25       40. The method of Claim 38, further comprising:  
detecting an object proximate to a bottom surface of the lift device; and  
interrupting a down move command from a hand control operated by a worker from  
being communicated to a drive component driving a downward motion of the  
lift device.

41. A method for assembling aircraft, comprising:  
approaching an aircraft component with a lift device;  
detecting the aircraft component proximate to a portion of the lift device;  
interrupting a motion command from being communicated to a drive component  
5 driving a motion of the lift device towards the aircraft component; and  
stopping the lift device.

42. The method of Claim 41, further comprising indicating a direction a steering device  
of the lift device is turned.

43. The method of Claim 41, further comprising displaying a warning to the worker of  
10 the aircraft component being proximate to a surface of the lift device.